WHAT IS CLAIMED IS:

1. A projection system, comprising:

at least one projection device configured to receive a beam of radiation coming from a first object and to project the beam of radiation to a second object;

at least one sensor configured to measure a spatial orientation of the at least one projection device; and

a processing unit configured to communicate with the at least one sensor and with a positioning device, the positioning device configured to adjust the position of at least one of the first object and the second object based on the measured spatial orientation of the at least one projection device.

2. A projection system according to claim 1, wherein the processing unit is configured to communicate with a second positioning device configured to adjust the spatial orientation of the at least one projection device based on the measured spatial orientation of the at least one projection device.

3. A projection system according to claim 1, wherein the positioning device is configured to adjust the position of at least one of the first object and the second object based on a residual error after adjusting the spatial orientation of the at least one projection device.

4. A projection system according to claim 1, wherein the processing unit is configured to:

adjust the position of at least one of the first object and the second object based on the measured spatial orientation of the at least one projection device in a first frequency range; and

adjust the spatial orientation of the at least one projection device based on the measured spatial orientation of the at least one projection device in a second frequency range.

5. A projection system according to claim 1, wherein the at least one projection device comprises at least one of a mirror and a lens.

6. A projection system according to claim 1, wherein the at least one projection device is

mounted on a mounting device configured to actuate the at least one projection device in at least one degree of freedom.

7. A projection system according to claim 1, wherein the beam of radiation is an extreme ultraviolet beam of radiation.

8. A projection system according to claim 1, wherein the processing unit is configured to communicate with at least one second sensor configured to determine a position of at least one of the first object and the second object.

9. A projection system according to claim 1, wherein the processing unit comprises an I/O-device, a micro-processor, and a memory device.

10. A method for projecting a beam of radiation coming from a first object, and received by at least one projection device, to a second object, the method comprising:

measuring a spatial orientation of the at least one projection device;

determining an orientation error in the spatial orientation of the at least one projection device;

computing a projection error of an image projected on the second object based on the orientation error in the spatial orientation of the at least one projection device; and

adjusting a position of at least one of the first object and the second object to minimize a projection error.

11. A method according to claim 12, further comprising

calibrating an alignment of the first object to the second object in at least one degree of freedom.

12. A lithographic apparatus, comprising:

an illumination system configured to provide a beam of radiation;

a support configured to support a patterning device, the patterning device configured to impart the beam with a pattern in its cross-section;

a substrate table configured to hold a substrate;

a projection system configured to project the patterned beam onto a target portion of the substrate, the projection system comprising:

at least one projection device configured to receive a beam of radiation coming from a first object and project the beam of radiation to a second object;

at least one sensor configured to measure a spatial orientation of the at least one projection device; and

a processing unit configured to communicate with the at least one sensor and with a positioning device, the positioning device configured to adjust the position of at least one of the first object and the second object based on the measured spatial orientation of the at least one projection device.

13. An apparatus according to claim 12, wherein the processing unit is configured to communicate with a second positioning device configured to adjust the spatial orientation of the at least one projection device based on the measured spatial orientation of the at least one projection device.

14. An apparatus according to claim 12, wherein the positioning device is configured to adjust the position of at least one of the first object and the second object based on a residual error after adjusting the spatial orientation of the at least one projection device.

15. An apparatus according to claim 12, wherein the processing unit is configured to:

adjust the position of at least one of the first object and the second object based on the measured spatial orientation of the at least one projection device in a first frequency range; and

adjust the spatial orientation of the at least one projection device based on the measured spatial orientation of the at least one projection device in a second frequency range.

16. An apparatus according to claim 12, wherein the at least one projection device comprises at least one of a mirror and a lens.

17. An apparatus according to claim 12, wherein the at least one projection device is mounted

on a mounting device configured to actuate the at least one projection device in at least one degree of freedom.

18. An apparatus according to claim 12, wherein the beam of radiation is an extreme ultraviolet beam of radiation.

19. An apparatus according to claim 12, wherein the processing unit is configured to communicate with at least one second sensor configured to determine a position of at least one of the first object and the second object.

20. An apparatus according to claim 12, wherein the processing unit comprises an I/O-device, a micro-processor, and a memory device.

21. A device manufacturing method, comprising:

providing a substrate at least partially covered by a layer of radiation sensitive material; and

projecting a beam of radiation coming from a patterning device, and received by at least one projection device, to the substrate, the projecting comprising:

measuring a spatial orientation of the at least one projection device;

determining an orientation error in the spatial orientation of the at least one projection device;

computing a projection error of an image projected on the substrate based on the orientation error in the spatial orientation of the at least one projection device; and

adjusting a position of at least one of the patterning device and the substrate to minimize a projection error.

22. A method according to claim 21, further comprising:

calibrating an alignment of the patterning device to the substrate in at least one degree of freedom.